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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,831	06/08/2005	Seong-Hwan Lee	0630-2330PUS1	8642

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EXAMINER
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WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/537,831	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Teresa J. Walberg	<b>Art Unit</b> 3753	

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/8/05</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomotake (JP 11-189,999).

Tomotake discloses a heat exchanger as claimed including heat exchange plates laminated at regular intervals (Fig. 1), first and second air passages (Fig. 1), and first and second corrugation plates (Fig. 1), the heat exchange plates being made of porous paper (see abstract).

3. Claims 1, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Yokoya et al (6,019,170).

Yokoya et al disclose a heat exchanger (col. 6, lines 62-63) as claimed including heat exchange plates (2) laminated at regular intervals (Fig. 1), first and second air passages (A and B), and first and second corrugation plates (Fig. 3), the heat exchange plates being made of porous paper (see col. 10, lines 40-46), and the corrugation plates being made of an aluminum material (col. 14, line 17-20).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomotake (JP 11-189,999).

Tomotake discloses a heat exchanger as claimed with the exception of the type of paper used being "Korean paper". However, the paper used in the heat exchanger of Tomotake appears to be substantially similar to that claimed. It would have been obvious to one of ordinary skill in the art to use any desired type of paper in the heat exchanger of Tomotake, based on the exact moisture exchange characteristics desired and based on what papers were available.

6. Claims 4, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomotake (JP 11-189,999) in view of Takao (3,982,981).

Tomotake discloses a heat exchanger as claimed with the exception of the type of paper used including bast fiber of paper mulberry. However, Takao teaches the use of mulberry fibers (col. 2, line 14) for making paper used in heat exchangers (col. 1, line 9). It would have been obvious to one of ordinary skill in the art in view of Takao to use mulberry paper in the heat exchanger of Yokoya et al, the motivation being to obtain improved paper characteristics as taught by Takao.

7. Claims 2, 3, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoya et al (6,019,170).

Tomotake discloses a heat exchanger as claimed with the exception of the type of paper used being "Korean paper". However, the paper used in the heat exchanger of Tomotake appears to be substantially similar to that claimed. It would have been obvious to one of ordinary skill in the art to use any desired type of paper in the heat exchanger of Tomotake, based on the exact moisture exchange characteristics desired and based on what papers were available.

8. Claims 4, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoya et al (6,019,170) in view of Takao (3,982,981).

Tomotake discloses a heat exchanger as claimed with the exception of the type of paper used including bast fiber of paper mulberry. However, Takao teaches the use of mulberry fibers (col. 2, line 14) for making paper used in heat exchangers (col. 1, line 9). It would have been obvious to one of ordinary skill in the art in view of Takao to use mulberry paper in the heat exchanger of Yokoya et al, the motivation being to obtain improved paper characteristics as taught by Takao.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Lee teaches a Korean paper made of mulberry bark (col. 6, line 46-48). Mita is cited to show a pulp production process. Fukami et al, Takahashi et al, Akita et al, and Bergh et al are cited to show heat exchanger structure.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Teresa J. Walberg  
Primary Examiner  
Art Unit 3753

tjw